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Wage effects of works councils and opening clauses: The German case

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Abstract
German employment relations are characterized by a distinct dual system. First, working conditions and wages are determined by industry-level collective bargaining agreements. Second, on the establishment-level, the works council is responsible for employer–employee negotiations. However, since the mid-1980s, an increasing number of areas of regulation have been transferred from the industry- to the establishment-level using so-called opening clauses. The analysis in this article relies on rich German establishment data and reveals new insights into the institutional machinery of wage bargaining. While the existence of such clauses is related to higher wages, their application results in wage cuts of roughly the same size. The results also suggest that works councils, on average, are able to prevent the negative wage effects of opening clauses.

Keywords
Collective bargaining agreements, opening clauses, organized decentralization, wages, worker participation, works council

Introduction

Many western countries have witnessed major changes in industrial relations over the past few decades. One major dimension of these changes is the centralization–decentralization dichotomy, with some economies shifting towards decentralization and single-employer bargaining and away from centralized bargaining at the national or industry level (Flanagan, 2008; Haipeter, 2011; Traxler, 1995; Whittall, 2005). These changes in industrial relations are generally seen as long-term phenomena of a structural nature that can be traced back to the globalization of product and labour markets and to industrial and occupational restructuring (Bosch, 2004; Flanagan, 2008; Traxler, 1995). However,

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as Traxler (1995) notes, decentralization must not be confused with disorganization because such shifts often yield new forms of coordination between the various levels. Moreover, if such measures of decentralization lead to greater mutual trust, increasing cooperation at the establishment level appears to be a complement rather than a substitute to industry-wide coordination mechanisms. Of course, there are diverse patterns of institutional evolution, but Germany, with its dual system of industry and establishment level bargaining, is a prime example of organized decentralization.

In Germany, wages have typically been determined at a level above the establishment level since the dual system was established. In this system, works councils are usually not allowed to negotiate topics regulated in collective bargaining agreements (CBAs). However, an increasing number of areas of regulation have been transferred from the industry to the establishment level since the mid-1980s. Today, even wage bargaining, the heart of CBAs, has gained flexibility through so-called opening clauses. These clauses allow for the decrease of collectively agreed-upon wage floors under certain circumstances. Because this development shifted distributional struggles from the industry level to the establishment level, works councils could then play a more pronounced role.[1] The effect of German works councils on a variety of aspects, such as establishment performance and employment issues, have received increasing attention in recent decades (see Jirjahn [2011] and Addison et al. [2004b] for an in-depth survey). Despite these advances, the knowledge of works councils' effects on wages is underdeveloped. More recent research generated new insights, but there is still no general consensus on the interplay between wages and works councils.

Our analysis brings together both strands – the notion of organized decentralization and the ongoing discussion regarding the effects of works councils on wages. On the basis of rich German establishment level data, we provide empirical results on the interaction between works councils and opening clauses with regard to wages. Our analysis thereby delivers new insights into the process of wage bargaining in Germany and disentangles the interplay between the industry and the establishment level. More precisely, our results show that works councils are able to counteract wage reductions (that are induced by the application of opening clauses) at the establishment level, which are legitimized by collective contracts.

The article is organized as follows. The following section introduces the institutional setting in Germany and considers the related literature. The third section describes the data and presents descriptive evidence. The fourth section develops a simple but suitable empirical strategy. The fifth section discusses the findings, and the final section presents the conclusions.

Institutional and theoretical background

German employment relations are characterized by a distinct dual system. First, working conditions (especially working hours) and wages are typically determined by industry-wide regional CBAs that are negotiated between unions and employer associations. Despite a pronounced decline in coverage since the mid-1990s (Ellguth and Kohaut, 2011), CBAs are still the most important bargaining mechanism, especially in wage determinations; they provide homogeneous competitive conditions and keep industrial

conflict out of the company. Second, working conditions are also negotiated at the establishment level. In addition to company agreements or individual contracts, works councils are the crucial mechanism for employer–employee negotiations at the establishment level in Germany. However, this distinction is not clear in practice, as the industry level often either serves as a reference point in decentralized negotiations (Bosch, 2004) or retains some rights even in the case of opening clauses (see below).

A German works council consists of workers who are elected for a period of four years. Works councils can be formed in establishments with at least five workers, three of whom must be eligible for election. Because only the employees decide whether they wish to elect a works council, its formation is not automatic.[2] The legal basis of works councils, the Works Constitution Act, provides works councils with various substantial rights (regarding information, consultation, objection and even codetermination), but the act also limits their capabilities. First, works councils are obligated to consider not only the welfare of the employees but also the welfare of the establishment, and they may not call for industrial action. Second, works councils are dedicated mainly to production issues (e.g. working hours or overtime) and personnel affairs. They usually have minimal influence on distribution issues (e.g. wages or payment schemes) because the latter are typically regulated by industry-wide agreements in Germany. Addison et al. (1997, 2004a) provide an in-depth description of German works councils.

Conventional economic analysis of works councils refers mainly to the union monopoly model (e.g. Oswald 1985), arguing that works councils produce severe economic drawbacks by constraining the management's prerogative in a way that results in lower profits and efficiency. Related studies (e.g. Addison et al., 1993) have identified several sources of direct and indirect costs. However, these orthodox arguments have been heavily contested in a vast body of literature that points to market failures such as informational asymmetries, principal–agent problems and free-rider problems (Tüselmann et al., 2007). Exponents of the participation paradigm (Freeman and Lazear, 1995; Freeman and Medoff, 1979, 1984; Rogers and Streeck, 1995) especially emphasize how works councils can help overcome such failures: by stimulating information exchanges, reducing principal–agent problems, lowering turnover and mediating between capital and labour, works councils improve firm performance. To conclude, using the notion of the 'pie' (Freeman and Lazear, 1995), most scholars today believe that works councils boost a firm's productivity and increase the size of the pie. However, this is not the end of the story because it is plausible to assume that works councils also affect issues of redistribution by trying to secure a bigger slice of the pie via higher wages. Despite formal restrictions on influencing wages, previous empirical work suggests that the presence of works councils is associated with higher wages (Addison et al., 1993, 2001, 2010; Gürtzgen, 2010). Other findings suggest that this relationship between wages and works councils holds only for smaller establishments (Addison et al., 2000) or that there are no significant results (Kraft and Lang, 2008).

Finally, a closer look at the literature that focuses on the interplay between the industry and establishment levels reveals more interesting insights. Positive effects of works councils on productivity, and even on profitability, seem to be more pronounced when the establishment is subject to a CBA (Hübler and Jirjahn, 2003; Jirjahn, 2011). In contrast, wage effects of works councils are less pronounced in establishments with a CBA

(Hübler and Jirjahn, 2003). Here it can be argued that, in the presence of a CBA, works councils are released from the duty to engage in rent-seeking activities and are more likely to be committed to productivity-enhancing issues. With regard to turnover, Pfeifer (2011) shows 'that works councils are more effective in reducing quits if they are backed up by a collective contract'. However, our analysis must rely on establishments with CBAs[3] because opening clauses are implemented only under these conditions.

Overall, the traditional division of labour between centralized bargaining and codetermination at the establishment level has undergone some changes because, as in many other countries, there was pressure to decentralize (e.g. Haipeter, 2011; Katz, 2004; Schnabel et al., 2006; Traxler, 1995; Whittall, 2005). Beginning with working time issues (in the mid-1980s), areas of regulation were increasingly transferred to the establishment level, and collective agreements provided only the framework for individually negotiated adjustments between works councils and establishment management. Since then, there has been an ongoing discussion on increasing establishment level flexibility using opening or hardship clauses and company level pacts for employment and competitiveness. The former function is the legal precondition to negotiate collectively agreed-upon issues at the establishment level. The latter serve as the main regulatory instrument used by employers and employees and their respective works councils to reach an agreement. However, company level pacts are also used in establishments not covered by collective agreements. See Seifert and Massa-Wirth (2005) and Ellguth and Kohaut (2008) for more information on the preconditions, content and incidence of company level pacts.

Establishments can and could always exceed regulations set by CBAs (*Günstigkeitsprinzip*), but only opening clauses provide a (legal) way to fall below these standards. Opening clauses are included at the industry level in the CBAs and provide a vehicle to renegotiate collective bargaining issues (mostly working time and wage regulations) at the establishment level within predefined scopes, limits and procedures. The actual realization of opening clauses leads to manifold results: originally, opening clauses were introduced to provide companies with the option to fall below standards if they ran into economic trouble. In this case, some form of crisis is an explicit precondition for the application of an opening clause. Increasingly, however, establishments that are economically viable can apply opening clauses; in many CBAs, the enhancement of the establishment's competitiveness is reason enough to undercut collectively agreed-upon standards (Bosch, 2004). Regarding the degree of deviation from the CBA, some opening clauses enable establishment level parties to deviate from the limits stated in the CBA. Other opening clauses give more space for establishment level negotiations but retain veto rights for unions and employer associations. Sometimes, specific establishment level arrangements are negotiated at the industry level. See Schnabel (2003) and Kohaut and Schnabel (2007) for a more comprehensive discussion on the procedures, scope and use of opening clauses.

Opening clauses are negotiated on the basis of various topics, primarily working time issues and wages. According to Brändle et al. (2011), until the late 1990s, most opening clauses were focused on working time adjustments. In recent years, the contents have shifted. Lately, the vast majority of agreements include elements that allow for the reduction of wages. Concerning the actual application of opening clauses, Kohaut and Schnabel

(2007) find that establishments (in 2005) do so less frequently by agreeing on wage reductions. However, one must be wary in interpreting this finding, which does not imply that wages might not be affected where working time issues are agreed upon. A reduction in working time may leave hourly earnings untouched but is often attended by a respective adjustment of monthly wages. We will come back to this issue in the next section.

In addition to the previously mentioned studies, there is only sparse literature on opening clauses: Kohaut and Schnabel (2007) analyse the determinants of the application of opening clauses with establishment-level data and show that establishments with performance problems typically apply such clauses more often. Bosch (2004) provides informative examples regarding the content and procedures of opening clauses. Examining the relation between export activity and the flexibility of collective bargaining agreements, Heinbach and Schröpfer (2008) find no clear evidence concerning the use of opening clauses. Research on the reasons why employers get out of a collective agreement (i.e. leave the employer association) reveals no dampening effect of opening clauses (Ellguth and Kohaut, 2010). Finally, the existence of opening clauses seems to reduce job destruction rates, whereas the application of opening clauses shows no additional effect (Brändle and Heinbach, 2010). Regarding the interaction of opening clauses and works councils, there is – surprisingly – not much empirical evidence, although there should be a strong relationship: if opening clauses are applicable, works councils are brought back in as wage renegotiations are now transferred to the establishment level. The following paragraph will discuss this issue in more detail.

On the one hand, in centralized bargaining between employer associations and unions, the implementation of opening clauses in CBAs should generally lead to higher wage demands. Fitzenberger and Franz (1999) argue that the introduction of opening clauses in CBAs induces unions to enforce higher wages, as this provides a way to skim off higher rents in well-off establishments while it is still possible to adjust wages downwards in other establishments. If so, those establishments with opening clauses in their CBAs should be bound to pay higher wages than those without. On the other hand, the application of opening clauses should show a negative wage effect. Whether used in times of economic crises or as an answer to challenges to the establishment's competitiveness, one main goal of opening clauses is to reduce labour costs. Therefore, a clear distinction between the existence of opening clauses in CBAs and their actual application at the establishment level is crucial (Brändle et al., 2011). In summary, while we expect a positive association between the existence of opening clauses in CBAs and wages, there should be a negative effect on wages if such clauses are applied. Moreover, in the presence of works councils, it can reasonably be assumed that the negative wage effect of the application of opening clauses is dampened, as works councils should be engaged in protecting the employees' wages regardless of whether they are reduced through wage cuts or a reduction in working time.

Data and descriptive evidence

This study uses the German IAB Establishment Panel, an annual survey of approximately 16,000 establishments that represents all industries and all establishment sizes. For in-depth information on the IAB Establishment Panel, see Fischer et al. (2009).[4]

Establishments with fewer than five employees are omitted, as the Works Constitution Act does not allow the formation of works councils in these establishments.

To assess the wage effects of the existence of opening clauses as well as of their application, we compare both the total monthly wage bill of establishments with opening clauses written in their CBAs and the total monthly wage bill of establishments that apply existing opening clauses to establishments without opening clauses in their CBAs.[5] Therefore, our enquiry is concentrated on establishments bound to industry level CBAs. We use information from the years 2005 and 2007 because information on opening clauses is available only for those years.[6] First, the questionnaire asks whether the CBA of the establishment is bound to contain opening clauses (existence of opening clauses). Second, as the application of opening clauses at the establishment level is not automatic, the establishment is asked whether such clauses are applied (application of opening clauses). Therefore, not every establishment has the opportunity to employ opening clauses.

Table 1 summarizes basic information in our sample regarding opening clauses and works councils. More information on additional variables can be found in Table 3. Because our sample is restricted to establishments with industry level CBAs, a large part (59% or 4896 of 8288) of our observations exhibit works councils. About every third establishment (31% or 2598 of 8288) has the opportunity to apply opening clauses as their CBAs include corresponding regulations, and nearly half (49% or 1261 of 2598) of these establishments actually deploy opening clauses. More precisely, we find that roughly 39% (1899 of 4896) of all establishments with works councils and 21% (699 of 3392) without works councils are bound to CBAs with opening clauses. However, within these subsamples, every second establishment deploys opening clauses if applicable (338 of 699 and 923 of 1899). The latter result suggests that the application – although not the consequences in terms of wages (as we will see in the regressions) – of an opening clause itself is generally irrespective of the works council's status. This result is astonishing because it would seem that works councils should try to avoid the impending application of opening clauses, which are connected to at least some austerity measures for the employees. However, it also seems plausible that the application of opening clauses is recognized not as the trigger of negative developments but as an opportunity to keep up competitiveness or, as a last resort, to act in the interest of the employees during times of poor performance.

With regard to our outcome variable, Table 2 offers a surface impression of the relationship between wages, opening clauses and works councils. This table provides the same information as Table 1 but distinguishes between establishments that pay below and above the mean wage. First, the results show that establishments with higher wages exhibit CBAs with opening clauses more often than establishments below the mean wage (39% or 1889 of 4842 vs 21% or 709 of 3446, respectively). Second, given the existence of opening clauses, establishments below the mean wage apply such clauses more often than establishments above the mean wage (54% or 385 of 709 vs 46% or 873 of 1889, respectively). These results support our theoretical considerations because the existence of opening clauses is correlated with higher wages while the application of such clauses is related to lower wages. Our econometric model will reassess this relationship more precisely.

Table 1. Existence and application of opening clauses in establishments with and without works councils (frequencies, proportions in parentheses).

	Works councils = 0	Works councils = 1	Total
Existence of opening clauses = 0	2693 (0.325)	2997 (0.362)	5690 (0.687)
Existence of opening clauses = 1	699 (0.084)	1899 (0.229)	2598 (0.313)
Total	3392 (0.409)	4896 (0.591)	8288 (1.000)
Application of opening clauses = 0	3054 (0.368)	3973 (0.479)	7027 (0.848)
Application of opening clauses = 1	338 (0.041)	923 (0.111)	1261 (0.152)
Total	3392 (0.409)	4896 (0.591)	8288 (1.000)

Basis: All observations of model (1) in Table A1.
Source: IAB Establishment Panel 2005 and 2007.

Table 2. Existence and application of opening clauses by wage level in establishments with and without works councils (frequencies, proportions in parentheses).

	Works council = 0	Works council = 1	Total
Wage below mean			
Existence of opening clauses = 0	1908 (0.554)	829 (0.241)	2737 (0.794)
Existence of opening clauses = 1	415 (0.120)	295 (0.086)	709 (0.206)
Total	2323 (0.674)	1123 (0.326)	3446 (1.000)
Application of opening clauses = 0	2091 (0.607)	970 (0.281)	3061 (0.888)
Application of opening clauses = 1	232 (0.067)	153 (0.044)	385 (0.112)
Total	2323 (0.674)	1123 (0.326)	3446 (1.000)
Wage above mean			
Existence of opening clauses = 0	785 (0.162)	2168 (0.448)	2953 (0.610)
Existence of opening clauses = 1	284 (0.059)	1605 (0.331)	1889 (0.390)
Total	1069 (0.221)	3773 (0.779)	4842 (1.000)
Application of opening clauses = 0	963 (0.199)	3003 (0.620)	3966 (0.819)
Application of opening clauses = 1	106 (0.022)	770 (0.159)	873 (0.181)
Total	1069 (0.221)	3773 (0.779)	4842 (1.000)

Basis: All observations of model (1) in Table A1.
Source: IAB Establishment Panel 2005 and 2007.

Econometric strategy

In the first step, we start investigating the overall effect of the existence of opening clauses. We assume the following simple linear relationship at the establishment level:

$$\log(Y) = \beta_0 + \beta_1 WOCO + \beta_2 OC + \beta_3 OC*WOCO + x'\gamma + \varepsilon. \quad (1)$$

Y is the establishment's total monthly wage bill per full-time equivalent employee.[7] *OC* is a dummy variable for the existence of opening clauses in a given CBA. Therefore, in order to give an example, β_2 gives the difference (in percentages) with respect to the monthly wage bill per full-time equivalent between an establishment that is subject to a CBA containing opening clauses and those not containing opening clauses. *WOCO* is a works councils dummy variable, and *OC*WOCO* captures the interaction between the existence of opening clauses and works councils. This specification allows us to identify the relationship between the existence of opening clauses and wages as well as the moderating effect of works councils on the existence of opening clauses.[8] However, based on the reasoning above, it directly follows that this specification is insufficient because the treatment group is contaminated: establishments under a CBA with opening clauses (*OC* = 1) actually can but do not have to apply opening clauses. To obtain clean treatment groups, we introduce a distinction within our treatment group and extend our model:

$$\log(Y) = \beta_0 + \beta_1 WOCO + \beta_2 OC + \beta_3 OC*WOCO + \beta_4 OC2 + \beta_5 OC2*WOCO + x'\gamma + \varepsilon. \quad (2)$$

We add a variable for whether an establishment applies an opening clause (*OC2* = 1) or not (OC2 = 0). Because we want to investigate the full sample, we replace *OC2* with 0 if an establishment's CBA does not contain opening clauses. Otherwise, our model would suffer from perfect multicollinearity. Because we are interested in the interaction effect of works councils and the application of opening clauses, we add another interaction term (*OC2*WOCO*). This extension of our model ensures that we consider a well-defined treatment group. *x'* is a vector of potential confounders, and ε is an idiosyncratic error term. Moreover, we also have a well-defined sample because we do not exclude establishments under CBAs without opening clauses. Excluding such observations would cast doubt on our analysis because it is reasonable to assume that whether an establishment can apply opening clauses, especially regarding wages, is not randomly determined.

A further natural extension of our empirical model would be to differentiate based on the content of the opening clauses (wages or working time). However, our data set only contains information regarding the application of opening clauses. Because we expect the effects of the existence and the application to be different and our econometric approach relies heavily on having information on the existence and application of opening clauses simultaneously, this extension is not feasible. Moreover, the focus on the application of wage-opening clauses might conceal one of the direct effects induced by the existence of a works council, namely, the prevention of the application of wage-opening clauses in favour of other types of opening clauses. As mentioned above, it is clear that monthly wages are sensitive not only to wage cuts per se but also to changes in working time. Works councils should be interested in dampening wage reductions regardless of whether these reductions are induced by direct wage cuts or through a reduction in working time.

Beyond our key variables, we control for a range of establishment characteristics, such as the proportion of qualified employees, the proportion of employees with fixed-term contracts, the proportion of casual workers, the proportion of part-time employees, the proportion of trainees, a churning rate, a dummy variable for the type

Table 3. Sample description.

	Mean	SD
Log(wages/full-time equivalent)	7.722	0.457
Works council (yes = 1)	0.591	–
Existence of an opening clause (yes = 1)	0.313	–
Application of an opening clause (yes = 1)	0.152	–
Existence of an opening clause and works council (yes = 1)	0.229	–
Application of an opening clause and works council (yes = 1)	0.111	–
Proportion of qualified employees	0.734	0.239
Proportion of employees with fixed-term contracts	0.063	0.129
Proportion of casual workers	0.034	0.274
Proportion of part-time employees	0.212	0.235
Proportion of trainees	0.050	0.075
Churning rate	0.050	0.167
Establishment is not part of a larger enterprise (yes = 1)	0.600	–
Technical state of the establishment (1 = very good,…, 5 = bad)	2.157	0.743
Establishment invested in physical capital within the previous year (yes = 1)	0.774	–
Establishment is under foreign ownership (yes = 1)	0.076	–
5–9 employees	0.117	–
10–19 employees	0.117	–
20–49 employees	0.174	–
50–99 employees	0.142	–
100–199 employees	0.134	–
200–499 employees	0.163	–
500–999 employees	0.078	–
1000–4999 employees	0.060	–
5000 and more employees	0.005	–

Basis: All observations of model 1 in Table A1.
Source: IAB Establishment Panel 2005 and 2007.

of establishment (single establishment or part of a firm), the technical state of the equipment, a dummy variable for investment activities, a dummy variable if the establishment is of foreign ownership, industry dummy variables, establishment size dummy variables, state dummy variables and a year dummy in order to capture time effects, e.g. the development of inflation rates. Table 3 provides additional information on our variables.

Empirical evidence

Table 4 provides the estimation results. The full results can be found in Table A1 in the appendix. As explained in the previous section, model (1) comprises no information on the application of opening clauses. When interpreting the results, it should be taken into account that the coefficients give only an approximation for differences in percent. The

Table 4. Dependent variable: Ln(total wage per full-time equivalent), Method: OLS.

	(1)	[exp(β)–1]	(2)	[exp(β)–1]
Works councils (WOCO)	0.203***	0.225	0.205***	0.228
	(0.014)		(0.014)	
Existence of opening clauses (OC)	0.066***	0.068	0.108***	0.114
	(0.017)		(0.023)	
Existence*works councils (OC*WOCO)	–0.012	–0.012	–0.048*	–0.047
	(0.020)		(0.025)	
Application of opening clauses (OC2)			–0.086***	–0.082
			(0.030)	
Application*works councils (OC2*WOCO)			0.073**	0.076
			(0.033)	
Observations	8288		8288	
R^2	0.447		0.447	

Notes: Table displays β-coefficients and robust standard errors in parentheses, ***/**/* denotes significance on the 1%/5%/10% levels. The models also contain information on the following: number of employees (d), sector (d), state (d), year (d), proportion of skilled workers, proportion of workers with fixed-term contracts, proportion of casual workers, proportion of apprentices, single-establishment establishment (d), technology (1–5 scale) investments (d) and foreign ownership (d); d = dummy variable(s). See the appendix for the full results.
Source: IAB Establishment Panel 2005 and 2007.

exact difference in percent can be calculated by applying [exp(β)–1]. These numbers are also depicted in Table 4. We find a positive significant coefficient for works councils, a positive (significant) coefficient for the existence of opening clauses and an insignificant interaction between both variables. While the result regarding works councils – a wage premium of 22.5% – corresponds to that cited in previous literature,[9] the finding on the existence of opening clauses suggests that employers literally 'pay' for potential establishment level flexibility. In establishments without a works council the wage premium is 6.8%. In contrast, in establishments with a works council this wage premium is 1.2% smaller. A substantial explanation could be that employers in sectors with well-organized employees anticipate difficulties in enforcing wage reductions of the desired size. This difference in the wage premium becomes slightly more relevant – both in terms of economical and statistical significance – in the next model.

Column 2 (Table 4) gives the results for the application of opening clauses and the interaction with works councils. Again, we find a positive effect for works councils (22.8%). According to our theoretical considerations – if we take into account that the existence and the application of opening clauses should display completely different associations with wages – our results become very clear and straightforward to interpret. We start with the results for establishments without a works council. There is a positive effect for the existence of opening clauses (11.4%). Regarding the application of opening clauses, we find an expected negative, statistically and economically significant coefficient, implying a wage reduction of 8.2%. Thus, there is evidence that opening clauses are employed to fall below

collectively agreed-upon wages. In other words, our results show clearly that the premium, which is owed to the existence of opening clauses, is almost completely wiped out by its application leaving the establishments applying opening clauses at about the same wage level as those without opening clauses in their CBAs. This interpretation is supported by the coefficients for the existence and application of opening clauses of roughly the same size but with opposed algebraic signs; Wald tests show that the remaining difference is unsystematic. Fitzenberger and Franz (1999) argue that it is reasonable to assume that collectively agreed-upon opening clauses provide a way for unions to enforce higher wages. In our view, the existence of opening clauses can also be interpreted as a quasi-insurance to make higher wages affordable because, in cases of poor economic performance, establishments are able to cut back these high wages.

Works councils counteract this strategy and protect 'their' employees against wage cuts (*application*works councils*). While the application of opening clauses is related to lower wages (–8.2%) in establishments without works councils, our results imply that the application of opening clauses in establishments with works councils is connected with lower wages of 1.6 % ($\hat{=}-0.082 + 0.076$) only. Applying Wald tests, we can even infer that this effect is insignificantly different from zero. In brief, works councils are generally able to prevent the negative wage effects of the application of opening clauses. However, in our view, these results should not be interpreted as sheer rent-seeking actions because it may also be true that works councils offer alternative or even better and more sustainable solutions to economic problems than simple wage reductions.[10]

Furthermore, it is worth noting that our results are robust with regard to a smaller sample comprising only establishments with 21–100 employees; here, works councils have virtually the same rights and should exhibit similar participation needs (Addison et al., 2001). Since the economic rational is not as important in the public sector, we have re-estimated our basic model for private sector establishments only. Moreover, since the economic structure differs substantially between Eastern and Western Germany, we analysed these two regions separately. Altogether, our results remain robust (see Appendix A2).

Regarding works councils, prior studies (e.g. Addison et al., 2006; Jirjahn, 2011) emphasize that endogeneity presents a problem. Certainly, unobserved factors could also account for such problems in the case of opening clauses. Because our analysis employs only a cross-sectional design, we cannot identify a causal structure. This outcome is mainly due to data limitations; coping with works councils' endogeneity already poses a challenge because there is only rare variation over time. Because our data comprise only two points in time, it is difficult to exploit the panel structure of our data. Nevertheless, our robustness checks (see Appendix A2) include random and fixed-effects models. In order to capture potential time effects within our explanatory variables, we have also estimated our regressions for 2005 and 2007 separately. Again, the results do not change substantially.[11] We also tried some instrumental variable approaches but possible instruments – even those used in other papers (e.g. Addison et al., 2010) – failed the necessary tests. Notwithstanding the endogeneity problem, it must also be acknowledged that the results of this article fit the institutional and theoretical story quite well.

Conclusion

Changes in industrial relations took shape in a variety of ways, but many observers and scholars emphasized erosional developments. While there is evidence for such phenomena in Germany as well, such as the decline in union coverage, our article shows that it is important to examine the micro level and its interplay with the industry level. Decentralizing bargaining structures is not simply tantamount to giving up bargaining power: opening clauses are typically designed to deviate from CBAs within predefined limits only, or they maintain some form of veto rights for the industry level bargaining parties. However, as our analysis shows, there is a considerable interaction between the industry and the establishment level. First, we find wages to be higher in establishments that have the opportunity to apply opening clauses. This result can be interpreted in terms of a quasi-insurance. Establishments can afford higher (e.g. efficiency) wages more easily if they have the means to cut back wages in times of poor performance or severe competition. Second, and in line with this interpretation, we find lower wages if such clauses are actually applied. However, this result depends clearly on the works councils' status. The negative association is more pronounced in establishments without works councils but is virtually non-existent in establishments with such an institution. Therefore, we deliver the first evidence that works councils exhibit not only positive wage effects in general but also accomplish the task of safeguarding employees' demands in challenging times. Although the current analysis admittedly suffers from potential endogeneity problems, we feel that our results are sustainable because the theoretical considerations provide natural and convincing explanations for this scenario.

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Notes

1. In the 'traditional' division of labour between sectoral and establishment level bargaining, works councils were able to affect wages indirectly by either influencing the wage classification or negotiating wage premiums.
2. There is also some literature arguing that occasionally even the management triggers (or is at least involved in) the formation of works councils (Mohrenweiser et al., 2011).
3. We employ only establishments with sectoral or regional CBAs. Establishments with establishment level CBAs are excluded from this analysis because the application of opening clauses in this case is not connected with a switch from industry to establishment level wage bargaining.

4. Another possible data source would be the so-called LIAB (Linked Employer Employee Data of the IAB). The LIAB links information about the individuals within an establishment, such as age, gender and individual daily wages, from German social security data to the IAB Establishment Panel. However, since we are only interested in the mean differences in wages between different establishments, the IAB Establishment Panel is appropriate. Furthermore, the LIAB has the disadvantage that wage information is censored at the (social security) contribution assessment ceiling. A natural extension for further research would be the investigation of differences with respect to the establishments' income distribution empirically based on the LIAB.
5. These sample restrictions lead to the exclusion of establishments with more than four employees and establishments with an industry level CBA only, thus reducing our sample size substantially compared to the total of approximately 16,000 establishments per year.
6. Because the models are applied to pooled data, we allow for correlation within establishments. These correlations are configured by clustering the standard errors, i.e. applying a modification of White's (1980) sandwich estimator.
7. Similar to other studies we approximate full time equivalents by subtracting half of the number of part-time employees from the total number of employees. Our results remain robust if we employ the raw number of employees only.
8. This moderating effect is especially included for technical reasons and allows a sufficient specification of our control group for another interaction term (see equation 2). Substantial implications are discussed in the next section.
9. The results for the works council coefficient are quite similar to extant results (e.g. Addison et al., 2001).
10. This leads to the topic of different types of works councils and their respective impact on bargaining outcomes. In contrast to the mainly qualitative research exploring in detail the typologies of works councils or management–works councils relations, there are few corresponding quantitative analyses (Nienhüser, 2009: 376).
11. The only exception is given by the fixed-effects regression. The reason is that there is not enough within-establishment variation in the relevant variables in order to be able to distinguish between the existence and the application of an opening clause and moreover to identify different effects for establishments with and without a works council.

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Appendix

Table A1. Dependent variable: Ln(total wage per full-time equivalent), Method: OLS.

	(1) > 4 Employees	(2) > 4 Employees
Works councils (WOCO)	0.203***	0.205***
	(0.014)	(0.014)
Existence of opening clauses (OC)	0.066***	0.108***
	(0.017)	(0.023)
Existence*works councils (OC*WOCO)	–0.012	–0.048*
	(0.020)	(0.025)
Application of opening clauses (OC2)		–0.086***
		(0.030)
Application*works councils (OC2*WOCO)		0.073**
		(0.033)
Proportion of qualified employees	0.516***	0.515***
	(0.025)	(0.025)
Proportion of employees with fixed-term contracts	–0.051	–0.052
	(0.045)	(0.046)
Proportion of casual workers	0.026***	0.026***
	(0.008)	(0.008)
Proportion of part-time employees	–0.023	–0.026
	(0.028)	(0.028)
Proportion of trainees	–0.806***	–0.806***
	(0.073)	(0.074)
Churning rate	–0.174***	–0.177***
	(0.037)	(0.038)
Establishment is not part of a larger enterprise	–0.040***	–0.039***
	(0.009)	(0.009)
Technical state of the establishment	–0.011**	–0.011**
	(0.006)	(0.006)
Establishment invested in physical capital within the previous year	0.037***	0.038***
	(0.011)	(0.011)
Establishment is under foreign ownership	0.080***	0.081***
	(0.015)	(0.015)
10–19 employees	0.135***	0.135***
	(0.021)	(0.021)
20–49 employees	0.183***	0.183***
	(0.019)	(0.019)
50–99 employees	0.184***	0.183***
	(0.020)	(0.020)
100–199 employees	0.167***	0.166***
	(0.021)	(0.021)
200–499 employees	0.191***	0.189***
	(0.021)	(0.021)

Table A1. (Continued)

	(1) > 4 Employees	(2) > 4 Employees
500–999 employees	0.197***	0.196***
	(0.023)	(0.023)
1000–4999 employees	0.218***	0.218***
	(0.025)	(0.025)
5000 and more employees	0.243***	0.244***
	(0.053)	(0.053)
Mining and quarrying, electricity or water	0.267***	0.268***
	(0.045)	(0.045)
Manufacture of food	–0.041	–0.039
	(0.049)	(0.049)
Manufacture of consumer goods	0.194***	0.195***
	(0.046)	(0.047)
Manufacture of producer goods	0.245***	0.245***
	(0.043)	(0.044)
Manufacture of investment goods	0.261***	0.262***
	(0.042)	(0.043)
Construction	0.169***	0.172***
	(0.042)	(0.043)
Trade, maintenance and repair	0.085*	0.087**
	(0.043)	(0.044)
Transport, storage and communication	0.124***	0.125***
	(0.047)	(0.047)
Financial services	0.247***	0.246***
	(0.044)	(0.044)
Hotels and restaurants	–0.076	–0.073
	(0.051)	(0.051)
Education	0.253***	0.254***
	(0.049)	(0.050)
Health and social work	0.141***	0.141***
	(0.044)	(0.045)
Business services	0.060	0.061
	(0.046)	(0.046)
Other services	–0.028	–0.026
	(0.052)	(0.052)
Public services	0.139***	0.140***
	(0.043)	(0.044)
Hamburg	0.067*	0.065*
	(0.037)	(0.037)
Lower Saxony	–0.004	–0.002
	(0.020)	(0.020)

(Continued)

Table A1. (Continued)

	(1) > 4 Employees	(2) > 4 Employees
Bremen	–0.010	–0.011
	(0.027)	(0.027)
North Rhine-Westphalia	0.043**	0.043**
	(0.019)	(0.019)
Hessen	0.004	0.004
	(0.021)	(0.021)
Rhineland-Palatinate and Saarland	–0.004	–0.005
	(0.021)	(0.021)
Baden-Wuerttemberg	0.051***	0.052***
	(0.020)	(0.020)
Bavaria	–0.012	–0.012
	(0.020)	(0.020)
Berlin	–0.065**	–0.065**
	(0.028)	(0.028)
Brandenburg	–0.191***	–0.190***
	(0.023)	(0.023)
Mecklenburg-Hither Pomerania	–0.165***	–0.164***
	(0.029)	(0.029)
Saxony	–0.175***	–0.175***
	(0.024)	(0.024)
Saxony Anhalt	–0.189***	–0.188***
	(0.024)	(0.025)
Thuringia	–0.188***	–0.188***
	(0.023)	(0.023)
Time dummy 2007	0.009	0.009
	(0.007)	(0.007)
Observations	8288	8288
R^2	0.447	0.447

Notes: Table displays β-coefficients and robust standard errors in parentheses, ***/**/* denotes significance on the 1%/5%/10% levels.
Source: IAB Establishment Panel 2005 and 2007.

Table A2. Dependent variable: Ln(total wage per full-time equivalent), method: OLS; robustness checks.

	Works councils (WOCO)	SE	Existence of opening clauses (OC)	SE	Existence*works councils (OC*WOCO)	SE	Application of opening clauses (OC2)	SE	Application*works councils (OC2*WOCO)	SE	Observations	R^2
Baseline (model 2, Table 3)	0.205***	0.014	0.108***	0.023	–0.048*	0.025	–0.086***	0.030	0.073**	0.033	8288	0.447
21–100 employees	0.165***	0.019	0.109***	0.029	–0.084**	0.039	–0.115***	0.040	0.121**	0.050	2560	0.382
Without public sector	0.211***	0.015	0.107***	0.023	–0.052**	0.026	–0.090***	0.030	0.068**	0.033	7098	0.473
FE model	–0.011	0.026	–0.003	0.023	–0.033	0.028	–0.003	0.031	0.037	0.036	4410	0.086
RE model (unbalanced)	0.191***	0.013	0.064***	0.017	–0.044**	0.021	–0.057**	0.023	0.068**	0.027	8288	0.443
RE model (balanced)	0.159***	0.017	0.061***	0.021	–0.048*	0.025	–0.046	0.029	0.060*	0.033	4410	0.435
Year 2005	0.196***	0.017	0.098***	0.030	–0.038	0.033	–0.072*	0.041	0.053	0.044	4427	0.449
Year 2007	0.213***	0.019	0.118***	0.032	– 0.059*	0.036	–0.100**	0.042	0.094**	0.045	3861	0.451
East	0.262***	0.026	0.145***	0.047	–0.052	0.052	–0.085	0.060	0.055	0.066	2399	0.458
West	0.170***	0.016	0.079***	0.025	–0.033	0.028	–0.081**	0.035	0.064*	0.037	5889	0.452

Notes: Table displays β-coefficients and robust standard errors in parentheses, ***/**/* denotes significance on the 1%/5%/10% levels.
Source: IAB Establishment Panel 2005 and 2007.